

Turnblad *et al.* be reconsidered in view of the reasons described below and be withdrawn.

Claim 1 describes a method of controlling the release rate of an agricultural active ingredient from a seed treated with the active ingredient, and specifies, as one of its features, the step of "applying to the treated seed a film comprising an emulsion of a polymer in a liquid in which both the agricultural active ingredient and the polymer have low levels of solubility".

The Office argues that Turnblad *et al.* discloses each of the limitations of claim 1 and, in addition, many of the features that are described in dependent claims of the present application. Specifically, the Office argues that Turnblad *et al.* discloses a method of controlling the release of an agricultural active ingredient from a seed treated with an agricultural active ingredient; applying to the treated seed a film (identified as the "overcoating" that is described at col. 6, line 17 *et seq.* of Turnblad *et al.*), comprising an emulsion of a polymer (polyvinylpyrrolidone, for example) in a liquid ("liquid adhesive" of col. 6, lines 23 - 24). The Office states that the liquid is one "in which both the agricultural active ingredient and the polymer have low levels of solubility".

In order to anticipate a claim, a single reference must teach each and every limitation of the claim and every claim limitation must be considered.

In the present case, the Applicant respectfully maintains that the Turnblad *et al.* patent does not teach the step of "applying to the treated seed a film comprising an emulsion of a polymer in a liquid in which both the agricultural active ingredient and the polymer have low levels of solubility", because it does not teach that the polymer that is used as the "overcoating" -- which is the coating cited in the Action as being equivalent to the claimed coating -- must have a low level of solubility in the liquid in which it is suspended, or that it must be applied in the form of an emulsion, as required in every one of the presently rejected claims. At the locations in the Turnblad *et al.* patent that are specified in the Action, no such feature of the overcoating can be found. In fact, it appears that the reference is silent as to this required solubility relationship between the coating polymer, the active ingredient, and the emulsifying liquid. Moreover, in Example 2, the only specific example of an overcoating being applied to treated seeds, the coating solution is stated to be an aqueous "solution" that contains Methocel K100M

and PEG 8000. But both of these polymers are water miscible or water soluble (See, e.g., the attached information pertaining to the water solubility of PEG 8000 ( "has excellent water solubility") and of Methocel). Accordingly, they would be expected to form a solution, as stated in the Turnblad *et al.* patent, rather than an emulsion, as required in the claims.

It is respectfully maintained that the Turnblad *et al.* reference does not teach or suggest each and every feature of the present claims, and, therefore, cannot be found to anticipate the claims. Accordingly, it is respectfully requested that the rejection be reconsidered and be withdrawn.

Rejection of claims 3 - 6 and 37 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.* in view of GB 2 110 518 A to Tunde *et al.*

It is respectfully requested that the rejection of claims 3 - 6 and 37 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.* in view of GB 2 110 518 A to Tunde *et al.* be reconsidered in view of the reasons described below and be withdrawn.

Claim 3 depends ultimately from claim 1, and adds the feature of claim 2 that water is the liquid in which the polymer emulsion is formed. Claim 3 adds the feature that the weight ratio of the film to the treated seed is from about 1:10 to about 1:50, and that the weight percent of the polymer in the film when the film is applied to the treated seed is from about 0.5% to about 25%.

The Office has argued that Turnblad *et al.* discloses the features of claim 1, which are incorporated into the presently rejected dependent claims, and also teaches the feature of the ratio of the film weight to the seed weight. The Office admits that Turnblad *et al.* does not teach the required polymer composition, but argues that Tunde *et al.* discloses "an insoluble polymer in a seed coating composition from 10 - 25%" -- citing the location of page 1, line 86 to page 2 - line 5 -- and argues that it would have been obvious to modify the method of Turnblad *et al.* by using the polymer concentrations discribed by Tunde *et al.*, "depending upon use of the composition".

For the reasons discussed above, it is respectfully maintained that Turnblad *et al.* do not teach or suggest the claimed feature of "applying to the treated seed a film comprising an emulsion of a polymer in a liquid in which both the agricultural active

ingredient and the polymer have low levels of solubility". It is further maintained that the Tunde *et al.* reference does not add this teaching. In fact, contrary to the Office's assertion that Tunde *et al.* discloses "an insoluble polymer", the Tunde *et al.* publication specifically states (at page 1, lines 84 - 91) that its polymers are "reversibly water-soluble animal and plant proteins...", which form "... mixtures from the solution of which a water-insoluble ... coating is formed by drying." The Applicant respectfully maintains that this is not at all the same as the claimed requirement that the polymer to be applied to the seed to form the coating must have a low level of water solubility and be in an emulsion in water. Accordingly, it is believed that Turnblad *et al.*, alone or in combination with Tunde *et al.*, fails to teach or suggest the claimed feature that the treated seed is coated with an emulsion of a polymer in a liquid in which both the polymer and the agricultural active have low solubility.

Furthermore, as to the obviousness of the feature of claims 3 - 5 that describes the amount of the film and the concentration of the polymer in the film upon application, it is stated in the present specification (at page 7, paragraph 0069) that the combination of the amount of the polymer film that is used to coat the seed and the concentration of the polymer in the film are believed to be important to achieve the parameter of retaining the active ingredient on the seed while providing an exterior surface that has a low concentration of the active. The Office argues that it would have been obvious to modify the method of Turnblad *et al.* to arrive at the claimed concentration of polymer in the film (0.5% - 25% in claim 3, 4% to 15% in claim 4, and 5% to 11% in claim 5) on the basis of guidance provided by Tunde *et al.* (at page 2, line 5, where Tunde *et al.* teaches a polymer concentration of from 10% to 99%). The motivation to make this modification is cited as "so as to optimize the seed coating".

A clear exception to the rule that is it obvious to optimize variables within a range is the case where, as here, the parameter is not recognized to be a result effective variable. The Tunde *et al.* publication specifies a very wide range of allowable protein concentrations in its film coatings, and does not recognize that the combination of the amount of the film coating and the concentration of the polymer in the film affect the amount of active ingredient that is retained on the seed while providing an exterior surface that has a low concentration of the active. In fact, because the coatings described by Tunde *et al.* combine pesticides, when they are used, as a component of

the coating, it would be appear to be impossible to provide coatings having an exterior surface having a low concentration of the active.

Accordingly, it is believed that a skilled practitioner would have no motivation to modify the method of Turnblad *et al.* according to guidance provided by Tunde *et al.*, because neither Turnblad *et al.*, nor Tunde *et al.* recognize that the combination of the amount of the film and the polymer concentration of the film affect the amount of the active that is retained on the seed and the concentration of the active at the exterior surface.

Therefore, it is respectfully requested that the present rejection be reconsidered and withdrawn.

Rejection of claims 7 - 11 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.* in view of GB 2 110 518 A to Tunde *et al.* and further in view of U.S. Patent No. 4,337,330 to Robeson.

It is respectfully requested that the rejection of claims 7 - 11 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.* in view of GB 2 110 518 A to Tunde *et al.* and further in view of U.S. Patent No. 4,337,330 to Robeson be reconsidered in view of the reasons described below and be withdrawn.

Claims 7 - 11 ultimately depend from claim 1, and further describe coatings in which selection of the glass transition temperature of the polymer coating is used to control the release rate of the agricultural active.

The Office has rejected these claims over a combination of Turnblad *et al.* and Tunde *et al.*, as teaching the elements of the parent claims, as modified in view of Robeson to provide a coating that falls within the claimed coatings. The Office admits that neither Turnblad *et al.*, nor Tunde *et al.* teach the feature that the polymer coating have a particular glass transition temperature ( $T_g$ ), and cites Robeson as teaching that limitation. Robeson, however, appears only to mention the  $T_g$  of its polymer blends in passing, and does not appear to teach that the  $T_g$  of a coating formed from the blend can be useful as a parameter for providing a coating which retards the release rate of the agricultural active ingredient by a desired amount, as required by the claims. In its claims, in fact, Tunde *et al.* describes its various polymer blends in terms of composition, not according to  $T_g$ .

Therefore, it is maintained that Turnblad *et al.*, alone or in combination with Tunde *et al.*, or Robeson, does not teach or suggest the features of the parent claims, as discussed above. It is also maintained that Robeson does not add the teaching of the feature requiring the provision of a polymer coating having a  $T_g$  within a pre-selected range. Accordingly, it is respectfully requested that the present rejection be reconsidered and be withdrawn.

Rejection of claims 25 - 29, 31 and 33 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.*

It is respectfully requested that the rejection of claims 25 - 29, 31 and 33 under 35 USC §103(a) as being obvious over U.S. Patent No. 5,849,320 to Turnblad *et al.* be reconsidered in view of the reasons described below and be withdrawn.

Each of the rejected claims depend ultimately from claim 1. The argument for the patentability of claim 1 over Turnblad *et al.* that has been described above is reasserted here. Accordingly, it is believed that each of the rejected dependent claims is patentable over Turnblad *et al.* and it is respectfully requested that the present rejection be reconsidered and withdrawn.

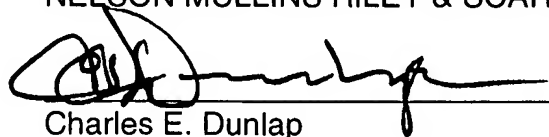
Request for reconsideration:

It is respectfully requested that the claims be re-examined in view of the reasons that are discussed above and be found to be allowable. If one or all of the claims are deemed to not be allowable, the Examiner is invited to call the undersigned attorney at the number given below for resolution of any remaining issues.

Respectfully requested,

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